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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/713,794	11/13/2003	Lawrence J. Karr	50037.0065USD5	4204

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EXAMINER

NGUYEN, DUC M

ART UNIT PAPER NUMBER

2618

DATE MAILED: 10/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/713,794

Applicant(s)

KARR ET AL.

Examiner

Duc M. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 34-39 and 44-52 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 34-39 and 44-52 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on ____ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- ☐ Notice of Informal Patent Application
- ☐ Other: ____.

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "A method for encoding and transmitting a data stream with low latency".

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim **34** is rejected under 35 U.S.C. 103(a) as being unpatentable by **Birru et al** (US 2003/0099303) in view of **Chen** (US 6101,168).

Regarding claim **34**, **Birru** discloses a method of encoding a data stream (MPEG data), comprising the steps of:

partitioning said data stream into a plurality of data packets at a transmission network center (see Fig. 1, 3, wherein it is clear that a video stream for television signals would obviously, if not implicitly, disclosed by **Birru** for partitioning into a plurality of MPEG packets from a video data source for inputting to an encoder in the similar way as disclosed by **Chen** utilizing a demultiplexer (see Fig. 9 and col. 6, lines

36-38). Note that a transmission network center is an inherent component in order to provide a video stream for television signals;

transmitting said data packets to a broadcast generator (see Fig. 3, which shows a broadcast generator for transmitting MPEG data packets);

receiving said transmitted data packets at said broadcast generator (see Fig. 3, noting for input data at the data randomizer 105);

writing said received data packets into an I/O memory of said broadcast generator (see Fig. 3, [0038] regarding the randomizer which would implicitly disclose an input memory for the randomizer in order to store the input data);

reading a plurality of extracted data packets from said I/O memory in an order that differs from the order in which said received data packets arrived at said I/O memory block (see Fig. 3, [0038] regarding the randomizer which would implicitly disclose an out memory for the randomizer in order to output the randomized data that has been reordered by the PRBS);

encoding said extracted data packets into encoded data streams (see Fig. 3, [0038] regarding the encoder 110); and

interleaving said encoded data streams into a plurality of interleaved data segments (see Fig. 3 and [0039] regarding segments).

Therefore, the claim limitations are made obvious by **Birru** and **Chen**.

4. Claim **35** is rejected under 35 U.S.C. 103(a) as being unpatentable by **Birru** in view of **Chen** and further in view of **Bessette** (WO 95/22233).

Regarding claim **35**, the claim is rejected for the same reason as set forth in claim 34 above. In addition, although **Birru** fails to disclose an I/O memory for the randomizer in that the memory outputs data upon the amount of data stored in the I/O memory reaching a predetermined level, it is noted that maintaining the fill level of a buffer within desired limits to minimize the risk of the buffer underflowing or overflowing is well known in the art as disclosed by **Bessette** (see **Abstract**). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify **Birru** for filling the buffer memory of the data randomizer up to a threshold amount before initiating encoding the data as claimed, in order to minimize the risk of emptying the buffer (underflow condition). Note that starting output buffer data or initiating encoding output data is an equivalent event.

5. Claims **38-39** are rejected under 35 U.S.C. 103(a) as being unpatentable by **Hancharik** (US 5,949,822) in view of **Chadwick** (US 5,442,646).

Regarding claims **38**, **Hancharik** discloses a method for communicating low latency data in a fading channel environment using a data structure having frames modulated on a subcarrier signal (see **Abstract**), comprising:

receiving a data stream including a plurality of data packets, wherein at least some data packets are designated as intended to be transmitted with low-latency (see Fig. 3 and col. 5, lines 7-18, 50-55 regarding low latency GPS data); and

interleaving said data packets over a broadcast frame except that the data packets designated as intended to be transmitted with low-latency are interleaved over

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a sub frame of the broadcast frame (see col. 10, lines 7-12 and col. 5, lines 8-19). Here, since Hancharik mentions in col. 5, lines 8-19 of the complex interleaving, correlating, and encoding scheme disclosed in US 5,442,646 issued to Chadwick as a reference, it is clear that **Hancharik** would obviously, if not implicitly, disclose the low latency packet data is interleaved over a subframe of the broadcast frame as claimed (see Chadwick, Fig. 2 regarding interleaver 116 and framing 120).

Regarding claim **39**, the claim is rejected for the same reason as set forth in claim 38 above. In addition, although Hrik fails to disclose the subframe is one-fourth of the broadcast frame, it is noted that Applicant has produced no evidence tending to show superior results because of his/her selection. Therefore, absent a showing to the contrary, it would have been obvious within one skilled in the art to provide such selected one-fourth.

6. Claims **34, 36-39, 44-51** are rejected under 35 U.S.C. 103(a) as being unpatentable by **Hancharik** in view of **Chadwick** and further in view of **Birru** (US 2003/0099303).

Regarding claim **44**, the claim is rejected for the same reason as set forth in claim 38 above. In addition, **Hancharik**, in view of **Chadwick**, would disclose an encoder and an interleaver as claimed (see Chadrick, Fig. 2 col. 5, 37 – col. 6, line 7). However, **Hancharik** fails to disclose an I/O memory for reading and writing the data packets in different orders. However, in an analogous art, **Birru** discloses a data randomizer for randomizing the input data in a substantially randomized patterns before

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input to an encoder (see **Fig. 3** and [0038] regarding the randomizer which would implicitly disclose an input/output memory for the randomizer in order to perform the above randomized feature). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to provide the above teaching **Birru** to Hancharik and Chadwick for incorporating such data randomizer (or the claimed I/O memory) before the encoder as well, in order to prevent large amount of related information from arriving at the receiver in sequence during the channel fading condition.

Regarding claim **45**, the claim is rejected for the same reason as set forth in claim 44 above. In addition, **Hancharik**, in view of **Chadwick**, would disclose performing bit-exclusive-OR and convolution encoding as claimed (see Chadwick, col. 4, lines 45-68).

Regarding claim **46**, the claim is rejected for the same reason as set forth in claim 44 above. In addition, **Hancharik**, in view of **Chadwick**, would disclose modulating the frame of interleaved data segments for transmission across an FM subcarrier to a mobile device when the mobile device is in a broadcast mode (see Chadwick, Figs. 1-2 and col. 6, lines 23-34).

Regarding claims **34, 47**, the claims are interpreted and rejected for the same reason as set forth in claim 46 above, wherein the STIC modulator 110 would read on a "broadcast generator" as claimed (see Chadwick, Fig. 2).

Regarding claims **35, 48**, the claims are rejected for the same reason as set forth in claims 34, 47 above. In addition, although **Birru** fails to disclose an I/O memory for the randomizer in that the memory outputs data upon the amount of data stored in the

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memory reaching a predetermined level, it is noted that maintaining the fill level of a buffer within a desired limit to minimize the risk of the buffer underflowing or overflowing is well known in the art (Official Notice). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to further modify **Birru**, **Hancharik** and **Chadwick** for filling the buffer memory of the data randomizer up to a threshold amount before initiating encoding the data as claimed, in order to minimize the risk of emptying the buffer (underflow condition).

Regarding claims **36**, **49**, **Hancharik** would disclose the step of indicating and modifying the interleaver for low latency data for the same reason as set forth in claimed **38** above.

Regarding claims **37**, **50**, **Hancharik** would disclose the bit-exclusive-OR and convolution encoding for the same reason as set forth in claimed **45** above.

Regarding claim **51**, the claim is rejected for the same reason as set forth in claim **47** above. In addition, it would have been obvious to include a segment header for identification purpose as disclosed by **Birru** (see [0040] and [0073]-[0077]), in order for a receiver to decode and resemble received packets correctly.

7. Claim **52** is rejected under 35 U.S.C. 103(a) as being unpatentable by **Hancharik** in view of **Chadwick** and **Birru**, and further in view of **Misaizu** (US 5,487,089).

Regarding claim **52**, the claim is interpreted and rejected for the same reason as set forth in claim **47** above. In addition, since **Hancharik** as modified would disclose the subcarrier signal generator is further arranged to modulate data corresponding to the

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output data utilizing quadrature phase shift keying (see Chadwick, Fig. 2 regarding DQPSK modulator 130), and since the QPSK modulator that modulates data correspond to symbol by symbol under the transmit clock timing is known in the art as disclosed by **Misaizu** (see col. 8, lines 1-5 and col. 9, lines 1-15), the claimed limitation is made obvious by Chadwick and Misaizu, so that the symbol can be modulated and transmitted in a frame according to transmitting timeslots.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 20050052571A1 to Ghosh,
US 20030105913A1 to Lee,
US006671284B1 to Yonge, III et al,
US 20050201368A1 to Periyalwar et al,
US 20020090938A1 to Dharia et al,
US006567471B1 to Yoshinari,
US005694404A to Huang,
US4692894A to Bemis

9. **Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(571) 273-8300 (for **formal** communications intended for entry)

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(571)-273-7893 (for informal or **draft** communications).

Hand-delivered responses should be brought to Customer Service Window,
Randolph Building, 401 Dulany Street, Alexandria, VA 22314.

Any inquiry concerning this communication or communications from the examiner
should be directed to Duc M. Nguyen whose telephone number is (571) 272-7893,
Monday-Thursday (9:00 AM - 5:00 PM).

Or to Matthew Anderson (Supervisor) whose telephone number is (571) 272-
4177.

Duc M. Nguyen, P.E.

Sept 28, 2006

A handwritten signature in black ink, appearing to read "Duc M. Nguyen", with a long horizontal flourish extending to the right.